DOCUMENT RESUME

ED 451 248 TM 032 476

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TITLE A Technique for Improving Institutional Learning Culture by Monitoring the Quality of Teaching.
PUB DATE 1999-08-00
NOTE 10p.; Paper presented at the Annual Meeting of the European Association for Institutional Research (21st, Lund, Sweden, August 1999). For related papers by the same author, see TM 032 475, TM 032 457, TM 032 462, and TM 032 478.
PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Ability; *College Faculty; College Students; Competence; *Evaluation Methods; Foreign Countries; Higher Education; Professional Development; *School Culture; *Self Evaluation (Individuals); *Student Evaluation of Teacher Performance; Teacher Attitudes
IDENTIFIERS Jamaica

ABSTRACT

This paper presents an alternative means of assessing faculty teaching that can be used by administrators. This method has been derived from in-depth faculty and student interviews, and its criterion of quality has been validated with empirical data through computer sensitivity analysis. The assessment process has been successfully tested in clinical teaching trials. Interviews with faculty have identified that their implicit expectations for professional development can be described in terms of technical skills, professional competence, and professional attitudes. This Three Ability Framework (3AF) is explained to the students by the lecturer, who is then rated by the students on each of these abilities. The lecturer rates himself or herself on the same abilities, and the alignment between the self-rating and the students' ratings is used as a measure of the effectiveness of teaching. The indicator of effective teaching is that the students and the instructor are working toward the same changes. This method promotes a positive teaching and learning culture in direct and indirect ways as it encourages teaching that promotes students' critical and evaluative thinking and high standards in technical skills and professional values. (Contains 33 references.) (SLD)

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Introduction

Many institutions now assess the quality of teaching by using anonymous student evaluations solicited towards the end of a course. They cannot feedback for the benefit of the students and the course to which they apply precisely because they are post-mortem evaluations. However, they are used by the institutions in a different context, for promotion and tenure decisions. This separation of context and purpose results in lecturers employing techniques of managing their teaching that deleteriously skew the institutional learning culture. For example, one technique of ensuring high student evaluations is to overgrade continuous in-course assessment and block-teach model examination answers. Students who have adopted a successful learning style for such courses are over-confident in their ability to transfer their learning to other courses and have diminished self-directed learning skills. The ripple-effect on the institutional learning culture is that lecturers on dependent courses must employ similar techniques. Dumbing down courses to increase popularity rating results in many problems for the institutional learning culture. One resulting problem is the difficulty these students then have in completing research theses and assignments. Research courses and research course components, which of necessity are dependent on transfer of learning, critical and evaluative thinking and self-directed learning, are being replaced by taught courses.

This paper presents an alternative means of monitoring teaching quality that can be used by lecturers and administrators. It is designed to promote an alternative positive teaching and learning culture within the institution. This alternative method of assessment was derived from in-depth faculty and student interviews. Its criterion of quality has been validated on empirical data by computer sensitivity analysis and the assessment process successfully tested in clinical teaching trials.

This assessment method explicitly promotes students' understanding and professional attitudes, as well as their traditional skills, by operationally defining the assessment of skills, understanding and attitudes. It respects professional freedom and the inherent culture of each subject area by giving lecturers the responsibility of promoting the culture of their subjects through their teaching and assessment of its skills, understandings and attitudes. It allows faculty to adjust their in-course teaching and assessment schemes to the changing needs of the student body and minority students in their classes. The method results in a single administrative decision-point number that is a measure of quality teaching as it applies to (i) a particular individual, or (ii) a minority group or (iii) the whole class.

Bastick, T. (1999, August). *A technique for improving institutional learning culture by monitoring the quality of teaching*. Paper presented at "New Realities - Renewed Institutions" for the European Association for Institutional Research (EAIR) 21st Annual Forum, Lund, Sweden.

Negative influences on an institution's teaching and learning culture

Many organisational factors and resources affect the teaching and learning culture of an educational institution. This paper focuses on the use of assessing quality teaching as a means of developing a positive teaching and learning institutional culture. There is a business maxim that states "what gets measured gets done and what gets rewarded gets repeated" (Friend, 1972). In educational institutions what gets rewarded is (i) the assessment of faculty teaching and (ii) the assessment of student learning. It is how the assessment of how teaching is done and how the assessment of learning is done that has a great influence on the learning and teaching culture of the institution (Beichner, 1994; Hake, 1998; Halloun & Hestenes, 1985; Halloun, Hake, Mosca, & Hestenes, 1997; Hestenes, Wells, & Swackhamer 1992; Hestenes & Wells, 1992; Sokoloff & Thornton, 1997). These three aspects (i) teaching (ii) learning and (iii) the assessment of both, are so inter-related that they should be considered together.

Problems with current assessments

Unfortunately traditional forms of assessment lack integration and problems caused by these traditional forms of assessment negatively influence the learning and teaching culture of institutions. The common traditional assessment of faculty teaching is via the use of student opinionnaires. For example, Seldin (1984) found that administrators utilized student opinionnaires in two-thirds of 616 institutions surveyed. Student opinionnaires have been criticised as popularity contests, where staff reduce the standards of their courses and lead students to expect high grades in order to 'win their vote' (Greenwald, 1997; Greenwald & Gillmore, 1997; Howard & Maxwell, 1982; Marsh & Dunkin, 1997; Marsh & Roche, 1997, 1998). Faculty are expected to change their teaching in view of this anonymous feedback (Moses, 1996). Often these opinionnaires are anonymous because students fear retribution for 'failing' their teachers or might be thought to be soliciting favourable grades for favourable assessments of their teachers. Faculty feel uncomfortable in this one-sided contest where they can be anonymously failed by the students they teach, yet have little influence over the selection of the students they must teach. Some faculty feel that having to change their course emphasis in order to please naive students is an infringement of their professional freedom to teach how they believe, in their best professional judgement, their subject should be taught (Crumbley, 1995). It is questionable how much a university should be an academic leader or be managed as a business subservient to the student customer where 'the customer is always right'. These influences have been contributing to a negative culture of low academic standards, demotivated professionalism and mutual distrust for some years (Arreola, 1983; Cashin, 1983; Cherry, Grant, & Kalinos, 1988). For example, "What is called development, growth, and self-improvement today becomes the means by which decisions for institutional personnel management purposes are made tomorrow. Faculties become wary and suspicious of this double message involved in the evaluation system" (Mark, 1982, p. 168).

The traditional assessment of student learning is via examinations and coursework assignments of various kinds. Here the one-sided game is against the student who has little educational recourse and so can only resort to complaint about the course and the faculty - even to the extent of litigation. To protect themselves from the 'court case student' faculty favour objective assessment that does not expose their professional judgements about the students' work. Such objective assessments tend to emphasise Bloom's lowest cognitive level of rote learning. For example, "McKeachie (1987) has recently reminded educational researchers and practitioners that the achievement tests assessing student learning in the sorts of studies reviewed here typically measure lower-level educational objectives such as memory of facts and definitions rather than higher-level outcomes such as critical thinking and problem-solving that are usually taken as important in higher education." Feldman (1989). Adult students in professional subjects rightly devalue courses that emphasise only rote learning, to the extent that they are prepared to cheat in order to maximise

their meaningless marks. Problem attendance is a feature of such courses - students get the lecture notes from those who do attend. Students learn not to criticise the views of faculty but to unquestionable do as they are told, and to parrot what they believe Faculty expects them to regurgitate in examinations. Such is the negative effect traditional assessments of teaching and learning have on the teaching and learning culture of the institution. Research has indicated that these problems are in part due to misunderstanding of mutual expectations (Bastick, 1995). Faculty lack clarity in explicitly stating their expectations and relating these to their teaching and assessment of the students. The students misunderstand what is expected of them and are confused.

Positive influences on an institution's teaching and learning culture

What is a positive teaching and learning institutional culture? The literature indicates that is one that encourages staff and students to be independent critical thinkers developing the attitudes and values of their profession. One where students and faculty value and enjoy the work they are doing. One where faculty and students respectfully work together based on a foundation of mutual trust. However, if an alternative method of assessment is to promote these changes, then first, that method must accommodate the wide institutional variations that exist in assessment preferences and aim to improve teaching and learning by allowing those lecturers who use it to appreciate more fitting styles of teaching and enable them to allow their students to adopt more fitting styles of learning. Secondly, an alternative method of assessing teaching and learning must resolve the misunderstandings and confusions about mutual expectations in order to avoid the problems that lead to a negative teaching and learning culture. Thirdly, an alternative method must promote a positive teaching and learning culture by (i) ensuring students and faculty understand each other's expectations and (ii) by ensuring that students and faculty are both working towards the same expectations (Abrami, d'Apollonia, & Cohen, 1990; Abrami, 1989; Bastick, 1995; Bortz, 1984; L'Hommedieu, Menges, & Brinko, 1990; Miller, 1986; Scriven, 1994, 1995).

It is also important to separate evaluations of attainment from evaluations of enjoyment, so that student evaluations of course enjoyment are not simply 'smile sheets' misused as assessments of academic attainment (Hake, in press). Hence, the two separate criteria of effective teaching used by this alternate method of assessment are to maximise (i) the academic attainment of the students and (ii) the students' and the lecturer's enjoyment of the course. The measurable indicator of effective teaching used is that the students and the lecturer are working towards the same expectations. The construct validity that this measurable indicator assesses the criteria is $p<0.01$ for both (i) and (ii) (Bastick, 1995)

Interviews with faculty on professional courses have indicated that their implicit expectations can be described and assessed in terms of three abilities (i) technical skills - rote learning, assessed by the accuracy of reproduction (ii) professional competence - appropriate transfer of skills to a novel situation, assessed by the justification of appropriateness and (iii) professional attitudes - the integration of one's life and work by one's values and beliefs, assessed by demonstration (Bastick, 1995). Faculty can be assisted in making these expectations explicit and in designing coursework and examinations that offer opportunities for assessing these three abilities. This professional development can be expected to improve the quality of their teaching (Askew, Brown, Rhodes, Wiliam, & Johnson, 1997). It should be their professional prerogative to decide, and justify to their peers and their students, the emphasis they judge should be given to each of the three abilities on their courses. These judgements will depend on the subject, its level and the professional inclination of the lecturer. For example, lecturers on B.Ed courses expect an emphasis on technical skills in the first year, moving to an emphasis on professional competence in the second year and a greater emphasis on professional attitudes in the third year.

The Three Ability Framework (3AF)

Three Ability Framework (3AF) is a complete alternative to post-mortem student opinionnaires and their attendant problems. The design of its management framework incorporates the positive influences mentioned above to enhance teaching/learning culture to the advantage of the institution, faculty and students. One part of the management framework is the use of the 3AF feedback form. The 3AF feedback form has only 6 necessary ratings that take less than 5 minutes to complete. Hence, the form can conveniently be used many times by the lecturer during the course for in-course tracking of teaching quality. At the end of the course it can be used by the administration to give a single decision point number representing the quality of teaching. This is also fairer and less threatening to faculty who, by previous uses of the form, have had opportunities to respond to the feedback and so improve the course for their students and for themselves. As mentioned above, previous research has connected teaching and assessment problems on professional courses with staff/student mis-matched expectations of three abilities. These three abilities are technical skills, professional competence and professional attitudes (Bastick, 1995). The 3AF uses the matching of staff/student expectations on these three abilities as the basis of teaching effectiveness.

The 3AF form asks for two ratings of each of these abilities; ratings of how it is now on the course and ratings of how the student would want it to be. This is shown in figure 1. The form takes longer to complete when additional information is requested.

Estimate, for you personally, how much this course emphasises, and should emphasise (i) Skills, (ii) Competence and (iii) Attitudes? Do this for both how the course **is now**, and for how the course **should be** - *write a number in each box.*

	As it **is now** on this course	As it **should be** on this course
(i) Emphasis on Skills	☐ Your estimate out of 100	☐ Your estimate out of 100
	As **it is now** on this course	As **it should be** on this course
(ii) Emphasis on Competence	☐ Your estimate out of 100	☐ Your estimate out of 100
	As **it is now** on this course	As **it should be** on this course
(iii) Emphasis on Attitudes	☐ Your estimate out of 100	☐ Your estimate out of 100

Figure 1: 3AF feedback form asking for two ratings of each of the three abilities

Technical Skills refer to the traditional speed and accuracy of reproducing facts and processes and is assessed by timed accuracy of reproduction. Professional competence refers to the ability to use the skills in a novel situation or extend these skills in a novel way. The assessment is by justification of the appropriateness of what is done. Professional attitudes refers to values that are appropriate to the subject. They are assessed by demonstration in practical situations.

From the difference in each pair of ratings it is possible to calculate each student's expectation for change in that ability. The lecturer completes the same ratings at the same time, and from the lecturer's form it is possible to also calculate, in the same way, the lecturer's expectations for change in each of the three abilities. Previous research has shown that when the students' expectations are the same as the lecturer's, that is both students and lecturer are working towards the same degree of change (indicator of effectiveness), then students get high grades and both the lecturer and the students enjoy the course (criteria of effectiveness). The correlations between the in-course indicators and the post-course criteria are significant at $p<=0.002$, with $n=56$ (Bastick, 1995).

Measuring effectiveness of teaching (ET)

The 3AF involves more than using the feedback form and calculating the results. There are four steps in the application of the method.

1. Pre-course peer justification of ratings

In the design stage, before the course starts, the lecturer needs to use his/her professional expertise to decide on what should be the emphasis on the course for each of the three abilities. A rationale should justify this decision, and it needs to be peer agreed. The lecturer can then build his/her expectations of the three abilities into the teaching and the design of course assignments that give students the opportunities to demonstrate the required level of each ability.

2. Explain and justify three abilities to students

Near the beginning of the course the lecturer needs to make sure the students understand the three abilities and how they will be taught and assessed through the content of the course.

3. Monitor 'as-is' and 'should-be' for students and lecturer

The 3AF feedback form is completed by students and the lecturer when the lecturer is ready to monitor the course, or the administration is ready to assess the teaching.

4. Calculating the effectiveness of teaching

This is done in the following two stages (a) and (b).

a) Calculate expected change for each student and lecturer:

Change=('should-be'-'as-is')/'as-is'

b) Calculate alignment:

Alignment=|Lecturer change-Student change|

Zero is the perfect score

The alignment is the Effective Teaching (ET) score. The ET score can be calculated for each student or as a mean for any group of students. Hence, the effectiveness of teaching can be monitored for any target group of interest - older students, students taking special electives, minority groups, gender balance, etc. Adjustments can be made to in-course teaching as necessary.

Safeguards from variation in students' set expectations

Students' expectations vary across Faculties and subjects, by years of education, previous experience and even by whether the course is compulsory or optional (Goldman, 1993). This creates an 'unlevel playing field' when traditional opinionnaires are used to assess faculty teaching. From the 3AF feedback

form the variation in students' expectations can be calculated and the result used as a safeguard to protect the lecturer from inappropriate student expectations. It will be realized that all course evaluations depend on matching student expectations to the expectations of the course. Some aspects of the course can be presented in different ways to match different student expectations. For example, so called 'learning styles' can be matched by adopting different 'teaching styles'. However, some aspects of the course may not be open to change to match student expectations, e.g. externally accredited content standards or the peer agreed emphases of the three abilities. Just as students expectations vary so does the flexibility of their expectations. If students' expectations of these unchangeables cannot be altered to accept them, then teaching ratings will go down through no fault of the lecturer. Traditional opinionnaires penalize the lecturer because they make no allowance for large variations in unchangeable student expectations. However, the 3AF allows the lecturer to show evidence that the original peer agreed emphases may not be appropriate for some groups on the course. This evidence can be used to either change the course expectations or change the student selection criteria.

Institutional commitment to staff development

The full Framework includes the commitment of the institution to develop faculty's ability to use their subject specialism as a vehicle for explaining, teaching and assessing the three abilities. Institutional staff development support includes promoting academic freedom and professional responsibility, assisting faculty in making expectations explicit, in designing assessment opportunities for the three abilities and developing the ability of faculty to teach the three abilities using the content of their subject areas. As was mentioned at the start of this article, there is a saying in business that "what gets measured gets done and what gets rewarded gets repeated" (Friend, 1972). Quality teaching and quality learning get measured and get rewarded by the 3AF.

Summary of how the 3AF and how it promotes a positive teaching and learning culture

To use the 3AF in practice, lecturers explain to their students the three abilities and how they will be taught and assessed. When they wish to monitor the effectiveness of their teaching they ask the students to rate how they see the current emphasis of these three abilities and to rate how they would prefer the emphasis to be. The lecturer makes the same rating of the course. The indicator of effective teaching is that the students and the lecturer are working towards the same changes. This is measured by 'the change expected by the students' subtracted from 'the change expected by the lecturer'. Zero is the perfect score on the total of the three abilities, and indicates perfect alignment. The alignment score is the measure of effective teaching and can be calculated for individual students, and the mean calculated for minority groups or for special comparisons e.g. to measure if the teaching more effective for males than for females.

The method promotes a positive teaching and learning culture both directly and indirectly. It promotes a positive teaching and learning culture indirectly by encouraging forms of teaching and learning that faculty and students use to increase their valued assessment results, i.e. assessment driven teaching and learning. Namely, this method encourages teaching and learning that promotes students' critical and evaluative thinking, high standards in technical skills and professional values because this is what is assessed in faculty teaching and in students learning.

The assessment method also promotes a positive teaching and learning culture directly through student and faculty assessment support processes, as follows:

1. The institution promotes academic freedom and professional responsibility by confirming the lecturers' professional prerogative to decide, and justify to their peers and their students, the emphasis they judge should be given to each of the three abilities on their courses. This is reinforced by recognising an assessment process that lecturers control.

2. The institution promotes professional development by assisting faculty in making their professional expectations explicit in terms of the three abilities in their subject area and in assisting them to design coursework and examinations that offer opportunities for assessing these three abilities in their subjects.

3. Faculty encourage students' critical and evaluative thinking, to the extent faculty can justify this as desirable, by not assessing the correctness of professional competence, but by assessing the students' justifications of why the novel aspects of their applications are appropriate.

4. Faculty explicitly encourage professional attitudes, to the extent they can justify these as desirable, by assessing demonstrations of professional attitudes on course assignments.

Generally, the development of technical skills is already well served by traditional methods of assessment. However, an interesting staff development programme would be to share methods of teaching professional competence and professional values.

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